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ABSTRACT

A major goal of environmental education is to encourage individuals to develop ability to make thoughtful decisions which will create an environment that allows them to live a quality life. To this end, comments in this speech review the progress of environmental education in this direction and the role of The Ohio State University, School of Natural Resources, in contributing to such progress. A status report is prepared for both teacher education and school and non-school environmental education and communication. Facts show there are few programs aimed specifically at pre-service teacher education; teacher certification is practically non-existent; and inservice teacher training efforts are relatively small. Indicators for the level of literacy about environmental issues and alternative management strategies show there are relatively few operational programs in public schools compared to the number of school districts; materials are extensive in amount but are not interdisciplinary; the most successful programs involve teachers, administrators, and community citizens; and environmental education has been promoted at the federal level through the Environmental Education Act of 1970. Coverage of the Ohio State program includes its philosophy, objectives, undergraduate and graduate program structure, related programs, and facilities. (BL)

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Environmental Management Education: Status and the OSU/SNR Program

by

Robert E. Roth

Environmental management education is concerned with an individual's understanding of himself, his fellow man, the environment, and the interrelationships within and among each of these constellations of concern. A major goal is to encourage the individual to develop the ability to make thoughtful decisions which will create an environment that allows him to live a quality life. Specifically, environmental education is concerned with developing a citizenry that is:

1. knowledgeable about the biophysical and sociocultural environments of which man is a part;
2. aware of environmental problems and management alternatives of use in solving those problems; and
3. motivated to act responsibly in developing diverse environments that are optimum for living a Quality Life.

(Roth, 1969)

Thus it can be seen that environmental education is concerned with knowledge of the universe, society, and the individual, in that it not only attempts to provide the individual with environmental understandings, but also views him as a potential creative being and encourages him to accept the responsibility of decision-making which is his by virtue of being human.

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Another characteristic of environmental education is that it deals with attitudes, the attitudes people hold about themselves, toward other individuals and groups of individuals, and toward their environment. These constellations of ideas greatly affect our level of living and quality of life.

Because environmental education is not just ecology, resource-use, sociology, art appreciation, philosophy, or management, an inter-disciplinary focus is required that embraces the social sciences, humanities, science, and technology in like measure for purposes of developing cognitive understanding, belief and attitude change, and providing motivation for behavioral change and action.

STATUS

You ask: "Are we making any progress?"

THE FACTS FOR TEACHER EDUCATION

1. Through the ERIC center for Environmental Education a questionnaire was sent to 900 four year teacher education institutions to inventory the extent of environmental education programs and exemplary proffered courses. The returns are coming in at the rate of 50-60 per week with about 400 being returned so far.

Of the 400 returns thus far processed, about 80 institutions indicated they had a course or program in environmental education. Of those indicating such a course or program it seems likely that 40-50% could be categorized as offering only a course. Similarly, it should be pointed out

that "outdoor education" was not specified by some that had such a course, but this kind of omission will be double checked by examination of catalogs from each institution.

It can be concluded from this brief, and as yet incomplete, status survey that there are few programs in environmental education aimed specifically at pre-service teacher education.

2. A second consideration that one must make before answering any questions is the status of teacher certification in environmental education. A survey recently conducted by Dr. Sigmund Abeles of Connecticut State Department of Education inventoried certification in 47 states and found that one state, Wisconsin, has secondary certification in environmental education and none has it at the elementary level. In addition, seven states favor certification while 23 oppose it, with 17 giving "no response" to the question. Three states indicate a separate course in environmental education or ecology as a requirement for elementary teachers: Montana, Oregon, and Wisconsin. Two indicate a course requirement at the secondary level and those are Wisconsin and Oregon. Five states indicate interest in developing a course requirement as "supplemental" or "minor area" certification and those are Washington, Nebraska, Oklahoma, Maine, and Illinois.

There is not very large acceptance of certification at the elementary or secondary level in environmental education.

3. Many colleges and universities do offer a workshop or special course on a more or less continuing basis specifically for teachers. Similarly NSF Institutes have made contribution to the education of science teachers

about environmental science. Yet in relation to the total number of teachers yet to be reached, these efforts are small.

In relation to teacher education one must therefore conclude that we have not prepared a generation of teachers equipped to handle the content, attitudes, and skills requisite to developing an environmentally literate citizenry.

THE FACTS FOR SCHOOL AND NON-SCHOOL ENVIRONMENTAL EDUCATION AND COMMUNICATION.

The level of literacy about environmental issues and alternative management strategies is difficult to measure. Indicators do exist and following are some that might provide the evidence we seek.

1. In a study conducted in late 1971 by Helgeson and Helburn, existing environmental education programs in public schools were analyzed. Results of the investigation indicated that there are relatively few operational programs in the United States compared to either the number of school districts, or more significantly to the number of school buildings. Programs designed for grades K-12 are few in number while more programs do exist in either elementary schools or secondary schools.

2. Materials produced in relation to environmental education are extensive in amount, are available in both print and non-print form, and are improving in quality. Most, however, do not appear to be inter-disciplinary and often lack concepts related to the social sciences or humanities. Similarly, urban oriented materials are few in number and most city schools have not developed materials oriented to their milieu.

3. Analyses of most programs being developed and those which have been developed indicate that a single person often was responsible for initiation of the program and has provided the drive for program continuance. The more successful programs have involved teachers, administrators, and citizens in the community with some staff time assigned for coordination of the program and for inservice work with teachers.

4. Another attempt to promote environmental education at the federal level was enactment of Public Law 91-516, The Environmental Education Act. An "office" was created and funding was obtained at the levels of $1.7 million for 1971, $3 million in 1972, and an estimated $3.1 million for 1973. With this money 74 projects were funded in 1971 and 162 in 1972. However, the amounts originally sought for those three years were $5 million, $15 million, and $25 million.

In early April it was learned that due to a "technical error" the Office of Environmental Education was losing $2 million of the estimated $3.1 million and as a consequence would only be able to fund 50 projects representing 35 states instead of about 150 representing 50 states. Two members of the National Advisory Council for Environmental Education have resigned in protest, notably Dr. Weidner, Chancellor of U.W. Green Bay and Mr. Richard Myshack, Exec. Director of the Minnesota Environmental Science Center.

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SNR Response

The School of Natural Resources at Ohio State is responsible for professionally oriented programs leading to employment in natural resources management and environmental education, and for coordinating effort in various disciplines from a variety of colleges in the development of such programs. The School is guided by an advisory committee representative of the disciplines interested in environment and natural resources. The programs offered are interdisciplinary; they draw upon many colleges and departments of the University.

The objective of the instructional program is to develop personnel capable of filling managerial, research, and educational roles in natural resources and environmental fields. A related objective is to develop an awareness by students from all disciplines of man's dependence on a finite resource base and of man's responsibility to manage resources in a manner to assure a quality environment. Research, extension, and continuing education programs are related to these objectives.

The development of a holistic view of man in relation to his natural resources base, and the training of natural resources managers who understand this view is the goal.

The programs of the School are organized by subject matter divisions corresponding to the specializations.

OTHER FACILITIES AND RELATED PROGRAMS

The School of Natural Resources has a 1200-acre tract of forested land, with lodging facilities for individuals and groups in the Clear Creek Valley of Hocking County. The tract is known as the Barnebey Center and is available for graduate study.

The Ohio State University has Cooperative Fisheries and Wildlife Research Units through which some fellowships are available. Additionally, the School of Natural Resources administers a statewide Biological Survey Program which offers employment opportunities for graduate students, and maintains liaison with state and federal resources agencies in aiding students seeking part-time work related to their field of specialization.

UNDERGRADUATE PROGRAMS

Division of Environmental Education is responsible for (1) the general courses for the entire School including 201, 600, and 601, and (2) specialized instructional or educational courses and programs. Under the second responsibility fall a degree program in interpretive work, the double-degree arrangement with the College of Education, the Natural Resources Communications specialization including that formalized as "Agricultural Journalism", and courses, workshops, and programs for teacher education both pre-service and inservice.

1. Interpretive Work is preparation for the role of "park naturalist" and for education work with visiting publics at nature centers, children's farms, museums of natural history and the like.

It is also preparation for school land laboratory development. The program follows all the recommendations of the Association of Interpretive Naturalists plus the resource-management orientation of the School of Natural Resources.

2. Double-Degree Program is a formalized arrangement between the School of Natural Resources (also available to other units of the College of Agriculture by reason of the arrangement having been made when the conservation courses and curriculum was in the College of Agriculture long before creation of the School of Natural Resources) and the College of Education. By this arrangement a student may be enrolled in both Colleges and by completing a specific program in each and a minimum of 241 quarter hours receive both a Bachelor of Science in Natural Resources and a B. Sc. in Education. The double-degree with the College of Education yields a teaching certification for undergraduates. Students interested should be aware that a Master's degree may be possible for about the same number of credit hours.

3. Natural Resources Communications is an undergraduate program with concentration in communications for natural resources majors. The formalized program is included with the Agricultural-Journalism Program under which a member of the School of Journalism advises students on a curriculum which includes a minimum of 29 quarter hours of journalism. Similar but less formalized concentrations may be developed with other communications "disciplines" or combinations thereof.

The graduate degree program in environmental education is developed in consultation with an advisor at the Master's level and a committee at the Ph.D. level. The basic foundation which students should experience is outlined below:

I. Environment:

1. Ecology - An understanding of basic ecological principles; the dynamics of ecological systems; and natural and man-influenced processes affecting ecosystems.

2. Human Ecosystem - An understanding of the structures of and relationships among institutional arrangements, the flows of power and influence, and impact of culture, values, and law on decision making within the human ecosystem. A thorough comprehension is expected of the linkages among the physical, cultural, and biological processes which affect man and the biosphere.

II. Management

1. Economics - An understanding of micro- and macro-economics theory; evolution of American economic thought; natural resources economics; and the integration of ecological and economic principles in promoting human welfare.

2. Policy - An understanding of: governmental structure function, and relationships at all levels of government; historical development of political thought and policies that have affected management of our environment; process and formulation and implementation of environmental policy; and the role of citizens and organizations in this process.

III. Communication

1. Education - An understanding of the views and practices of present and past educational philosophies and theories; the trends, movements and problems in education, philosophy, content, and methodology appropriate for environmental education and interpretation.

2. Communications - An understanding of the dynamics of public opinion, the formation and change of attitudes; and the techniques, skills, and media of use in disseminating information; and processes by which people acquire and integrate information into their lives.

IV. Research methods

1. Analytical skills - An understanding of the process of data collection and analysis for scholarly research, including knowledge of statistics, research design, and the role of simulation, gaming, and modeling in environmental education and management.

GRADUATE PROGRAMS

Admission to the M. Sc. program in Natural Resources requires a relevant undergraduate specialization with record or other evidence of competence indicating capability of creditable graduate work. Objective or intent to prepare for some kind of educational communications work is also an expectation.

Core Courses: The following courses or their equivalents constitute the common core for Enviro-Ed grad. students:

Natural Resources 600 - Natural Resources Policy (4)

Natural Resources 601 - Interactions in Resource Management (4)
or equivalent in advanced ecology or resource economics

Natural Resources 785 - Research Methods in Natural Resources Management or equivalent course/s in statistics and research

Natural Resources 897 - Graduate Seminar (3)

Non-thesis Option: 55 minimum hours to include two papers at least one of which will have been an individual study (Natural Resources 693). Comprehensive exam.

Thesis Option: 45 minimum hours of which 15 may be thesis credit (Natural Resources 999). Exam in defense of thesis.

Specialization Program: There is no limit on courses or hours taken in other departments. Students have opportunity to propose their own program. Coherence, however, is an acceptance criterion.

Educational and/or communications application is another and many departments have relevant offerings. The graduate student is obligated therefore, to propose and discuss his program as a condition for acceptance.

The Ph.D. Program is developed individually under direction of a faculty committee with approval of the Graduate School. The inter-disciplinary program must include in-depth course preparation in either a discipline, resource or educational specialization in an interdisciplinary program of courses approved by the graduate committee.

A. Requirements for admission include:

1. Education - Undergraduate degree from an accredited institution with a minimum 2.8 cumulative point hour average.

   - Master's degree from an accredited institution in education, a discipline, or a resource specialization.

2. Experience - Teaching and/or other work experience totaling at least three (3) years in elementary, secondary, or tertiary employment and also may be met by teaching associate experience for those not entering public school environmental education.

3. Filing of three letters of reference from supervisors, employers, and colleagues indicating information about the applicant's ability to conduct doctoral work,

effectiveness in the field and abilities to work with people.

B. Program Structure

1. Residence and credit-hour requirements

a. 45 hours taken at Ohio State

b. A period of concentrated graduate study at Columbus campus during three or four consecutive quarters with at least 10 graduate credits per quarter.

C. Twenty graduate credit hours after admission to candidacy in not less than two quarters of registration at this University.

Core:

Environment	20
Management	20
Research Methods	15
Intern Experience	10
Research	15
	95

IN CONCLUSION

Now the Question: "Are we making any Progress?" A qualified "yes" with:

(1) slow regressive gains in the areas of curriculum development and balanced program development;

(2) modest gains in teacher education, but much work remaining to be achieved in the form of program development and certification considerations;

(3) considerable progress in materials development with a strong need for urban oriented and social science-humanities related activities;

(4) a wide array of media approaches to environmental issues that generally receive considerable viewer audiences;

(5) impetus from the Environmental Education Act at the Federal level, but with no promise of future effectiveness; and

(6) increasing enrollments with capable and enthusiastic graduates of OSU's SNR program making an impact on the job market.

If environmental education is education that cannot wait, and if we are to achieve 'environmental literacy', and if such goals require the 'development and teaching of environmental concepts at every point in the educational process' - we have no choice but to provide the kind of relevant program that will make a difference..

Environmental education is directed at modifying man's attitudes toward his world - both the world of nature from which he derives and

inherits his responses and the world which he is creating. As his attitudes are reflected in informed democratic processes, both in the polling booth and in the market place, man must recognize that whatever happens or is not permitted to happen to his world can be substantially influenced by a majority vote. Speaking realistically this "vote" by each individual man, woman, or child - is determined by his or her attitudes toward self, toward others, and toward the quality of life for all. This means that all men must encourage self respect, respect for their fellows, and respect for the living earth.

PLEASE HELP!